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(19)

(54) DECORATIVE TRIM STRIP

(71) We, AISIN SEIKI KABUSHIKI KAISHA, a corporation organised and existing under the laws of Japan, of 1, Asahi-Machi 2-chome, Kariya city, Aichie pref., Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to a method of making a decorative trim strip, and to decorative trim strips so manufactured. The term " decorative trim strip " is used in this Specification to mean a strip of thermoplastics material of generally constant cross-section with a metallic finish displayed on the front face. The display of the metallic finish may be obtained by having a metal surface exposed on the front face of the trim strip or by having a metal surface within the trim strip, but visible from the front face through a transparent or translucent covering layer. The decorative trim strips of the invention are particularly suitable for use as embellishments on the exterior of motor car bodies, when the choice of material should be such as to withstand the conditions of normal use.

The invention provides a method of making a decorative trim strip, as above defined having a curved or angular sectional profile which comprises bonding a coating layer of thermoplastics material to the undersurface of a generally flat metal foil strip, with longitudinal grooves in the thermoplastics material, bending the coated foil strip to the desired profile, thus closing the longitudinal grooves, and heating the coating layer until sufficient of the thermoplastics material is molten to dissipate the join between opposite sides of the longitudinal grooves. By the undersurface of the metal foil strip there is meant the surface which in the finished decorative trim strip is not exposed to view and does not provide the decorative metallic finish. This surface is in practice concave in the finished trim strip. The coating layer of thermoplastic material may be applied only to the undersurface of the metal foil strip or it may be applied also to, and if desired bonded also to, the front face. If the thermoplastics material coats both faces of the metal foil strip it is advantageously applied by extrusion around the metal foil strip so as completely to encapsulate the metal foil strip.

The invention also provides decorative trim strips so manufactured, and in particular such strips being of channel-shaped section with inwardly directed edge portions for engaging behind fixing means to retain the strip in position.

If the thermoplastics material of the coating layer is a transparent or translucent material that coats both sides of the metal foil strip and is bonded to both sides of the metal foil strip, the finished decorative trim strip displays its metallic finish through a front covering layer of the thermoplastics material. If the finished decorative trim strip is to expose the surface of the metal foil strip on its front face, or if it is to display the metallic finish through a covering layer other than the thermoplastics material of the coating layer, the thermoplastics material should be bonded to the underside only of the metal foil strip and may if desired be opaque. It is still possible to extrude the thermoplastics material around the foil strip so as completely to encapsulate it, but after bending the coated foil strip to the desired profile and heating the underside of the coating layer so as to dissipate the join between opposite sides of the grooves the coating layer over the front face of the metal foil strip should be cut away so as to expose the decorative metallic finish. This method of manufacture has the advantage that the coating layer over

the front face of the metal layer protects the metal foil during bending, and reduces the occurrence of scratching.

Bonding of the coating layer may be achieved by applying adhesive to one or both faces of the metal foil strip, as appropriate, prior to extrusion of the thermoplastics material onto or around the foil strip. Advantageously the one or more longitudinal grooves are formed during such extrusion, the number and positions of the grooves being dictated by the desired sectional profile of the finished decorative trim strip.

Bending of the coated foil strip may be achieved by means of a conventional roll forming device modified only in the provision of heaters for heating the undersurface of the strip by an amount sufficient to melt the thermoplastics material to dissipate the join between opposite sides of the longitudinal grooves.

The metal foil strip is advantageously an aluminium or stainless steel strip. The thermoplastics material may advantageously be clear polyvinyl chloride or cellulose-acetate-butyrate (CAB) resin of a transparent or translucent surface covering is required, or any other thermoplastics material such as rigid or flexible polyvinyl chloride, acrylonitrile-butadiene-styrene (ABS) or clear CAB if in the final decorative trim strip the coating layer is on the underside only.

The invention is hereinafter particularly described, by way of example only, with reference to the drawings of which:—

Figure 1 is a schematic elevation of apparatus for carrying out the method of the invention, showing the section of the strip produced at an intermediate stage and at a final stage in the method;

Figure 2 is a section through a decorative trim strip manufactured on the apparatus of Figure 1; and

Figure 3 is a section through a decorative trim strip manufactured on a modification of the apparatus of Figure 1.

Referring first to Figure 1, the method and apparatus is illustrated schematically from which it will be seen that a strip of stainless steel foil 1 is unwound from a reel and coated with adhesive by means of an adhesive applicator 2. The applicator 2 comprises a roller 3 which dips partially into a bath of adhesive 4 to apply adhesive only onto the under surface of the foil 1. Shown in dotted lines is a modification of the applicator 2 which is described below in conjunction with the manufacture of a decorative trim strip according to Figure 3.

After passing the adhesive applicator 2, the stainless steel foil 1 advances through a drying apparatus 5 which dries the adhesive and then through an extruder 6. There thermoplastics material 7 is extruded around the foil so as completely to encapsulate it. The section of the coated foil strip as it emerges from the die of the extruder 6 is shown immediately above the section line 6P. It will be seen that the foil 1 is completely encapsulated in the thermoplastics material 7, and that longitudinal grooves 8*a*, 8*b*, 8*c* and 8*d* are formed in the thermoplastics material. The foil 1 is at this stage still generally flat. The coated foil is then advanced through a shaping or forming device which bends it into the desired section. The shaping device 9 includes heaters 10 in addition to the conventional shaping or forming rolls 11. The rolls 11 bend the coated foil to a form in which the grooves 8*a* to 8*d* are substantially closed, and the heaters 10 melt the thermoplastics material 7 on the underside of the foil to an extent which causes dissipation of the join between the opposite surfaces of the grooves. The section of the folded strip as it emerges from the shaping device 9 is shown immediately above the section line 9P, and it will be seen that the foil 1 is still completely embedded in the thermoplastics material 7. The strip is then passed through a shower cooling device 12.

In the method so far described, the thermoplastics material is bonded only to the underside of the metal foil 1, and the thermoplastics material itself may be any rigid or flexible material such as rigid polyvinylchloride, ABS, flexible polyvinylchloride or flexible CAB. To expose the metallic finish of the stainless steel foil, the thermoplastics material 7 is cut away from the front face of the foil 1, in a subsequent cutting device (not shown). The final decorative trim strip has the form shown in Figure 2, in which the locations of the now-dissipated grooves 8*a* to 8*d* are shown.

If it is desired to leave a protective layer over the front face of the metal foil, which can be extremely desirable when the foil 1 is an aluminium foil, the apparatus of Figure 1 is modified by the inclusion of an additional bath 2′ for adhesive 4, which applies the adhesive to the front face of the metal foil 1 as well as to its underface. Thus the thermoplastics material 7 is bonded to both faces of the foil, to produce a finished decorative trim strip as shown in Figure 3. The thermoplastics material 7 should in this case be a transparent or translucent material, preferably clear CAB or clear polyvinylchloride.

WHAT WE CLAIM IS:—

1. A method of making a decorative trim strip, as herein defined, having a curved or angular sectional profile which comprises bonding a coating layer of thermoplastics material to the undersurface of a generally flat metal foil strip, with longitudinal

grooves in the thermoplastics material, bending the coated foil strip to the desired profile, thus closing the longitudinal grooves, and heating the coating layer until sufficient of the thermoplastics material is molten to dissipate the join between opposite sides of the longitudinal grooves.

2. A method according to claim 1, wherein the coating layer of thermoplastics material is applied only to the undersurface of the metal foil strip.

3. A method according to claim 1, wherein the thermoplastics material is a transparent or translucent material and is applied as a coating to both faces of the metal foil strip.

4. A method according to claim 3, wherein the thermoplastics material is extruded around the metal foil strip so as completely to encapsulate it.

5. A method according to claim 3 or claim 4, wherein the thermoplastics material is bonded to both faces of the metal foil strip.

6. A method according to claim 5, wherein the thermoplastics material is clear polyvinyl chloride or cellulose-acetate-butyrate.

7. A method according to claim 1 wherein the thermoplastics material is applied as a coating to both faces of the metal foil strip but is bonded only to the undersurface of the metal foil strip and, after bending the coated foil strip and heating the coating layer, the thermoplastics material is cut away from the front face of the foil strip to expose the metallic finish.

8. A method according to claim 7, wherein the thermoplastics material initially is extruded around the metal foil strip so as completely to encapsulate it.

9. A method of making a decorative trim strip substantially as particularly described herein with reference to the drawings.

10. A decorative trim strip manufactured by a method according to any preceding claim.

11. A decorative trim strip according to claim 10 being of channel-shaped section with inwardly directed edge portions for engaging behind fixing means to retain the strip in position.

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1525 092 COMPLETE SPECIFICATION
1 SHEET

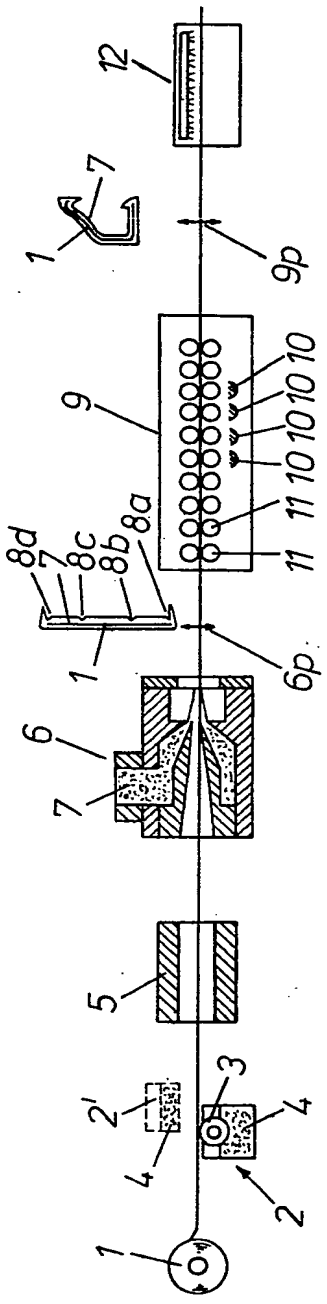

Fig.1

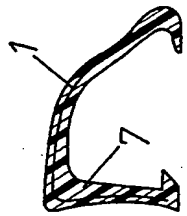

Fig.3

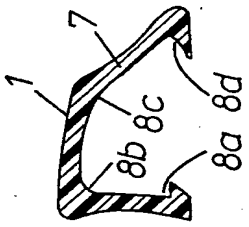

Fig.2

DECORATIVE TRIM STRIP

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US4094056 (A1)
JP53026017 (A)

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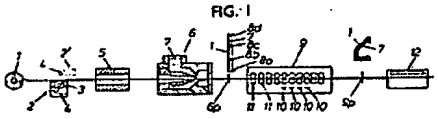
Abstract of **GB1525092**

1525092 Making profiled decorative strips AISIN SEIKI KK 11 Feb 1977 [20 Aug 1976] 05693/77 Heading B6G [Also in Division B5] A decorative trim strip of curved or angular profile, displaying a metal finish at the front face, is made by bonding a thermoplastic coating layer to the undersurface of a flat metal strip, the layer including longitudinal grooves, and bending the coated strip and heating the coating, whereby the grooves are closed and the joins dissipated. In an embodiment, the strip is coated with adhesive, the thermoplastic material is ex- truded on to one or both faces in the desired grooved form, and is bent by roll formers to the desired final shape whilst heating the grooved coating. Coating material applied to the outer face of the strip may be subsequently removed.

FIG. 1



Family list
3 family members for:
GB1525092
Derived from 3 applications.

Back to GB1525092

1 **DECORATIVE TRIM STRIP**
Publication info: GB1525092 A - 1978-09-20

2 **METHOD FOR MANUFACTURING ORNAMENTARY LACE FOR VEHICLE**
Publication info: JP53026017 A - 1978-03-10

3 **Decorative trim strip**
Publication info: US4094056 A - 1978-06-13

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